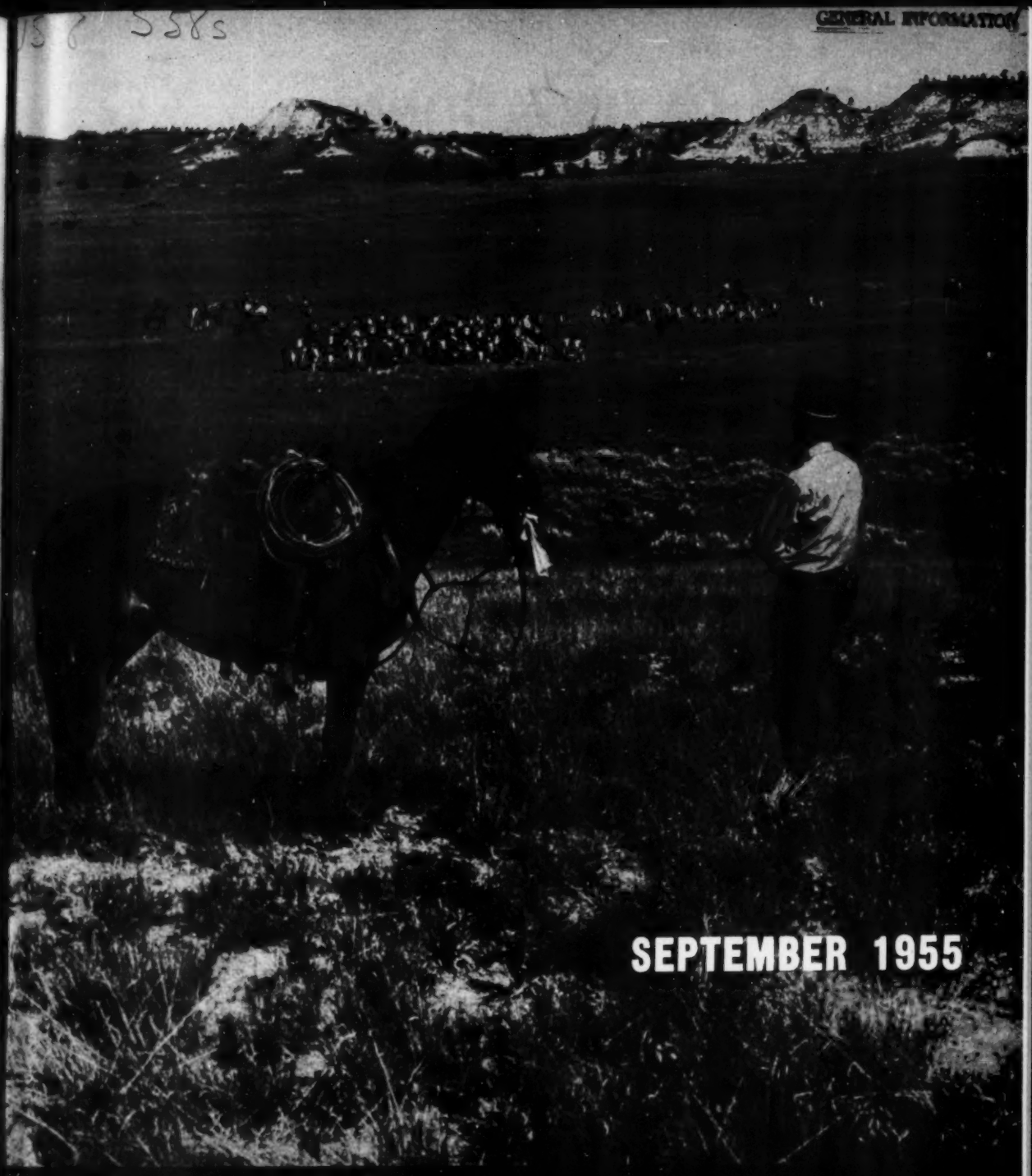

SEPTEMBER 1955

SOIL CONSERVATION

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SOIL CONSERVATION

SEPTEMBER 1955

VOL. XXI—NO 2

EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

DONALD A. WILLIAMS
ADMINISTRATOR, SOIL CONSERVATION SERVICE

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

★ THIS MONTH ★

WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business. The printing of this publication has been approved by the Bureau of the Budget, July 29, 1954. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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NASH WINNER.—Donald K. Wolff was among the recently announced winners of the Nash Conservation Award, professional class. The honor brought him $500 cash plus a handsome plaque. Wolff is work unit conservationist of the Soil Conservation Service at Belvidere, N. J. The award is accorded to individuals of outstanding merit in the field of conservation who have not heretofore received public recognition for their professional contributions. The recipient in this instance has made a fine record in assisting the Warren County Soil Conservation District.

The award was presented to Wolff by Ed Zern, who is national director of the awards program. State Conservationist Frank C. Edminster also was present.

Editors are invited to reprint material originating in this magazine.

FRONT COVER.—Fall roundup on Quarter Circle U Ranch, Big Horn County, Mont. This is the time when conservation ranching pays off, the range still in good condition after many months of use and the cattle fat and ready for market.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

YOA Means "Young Outdoor Americans"

By WILLIAM VOIGT, JR.

THE Izaak Walton League of America has been interested in youth in resource conservation virtually since it was organized in 1922. This interest has taken many forms, including the following:

Thirty Explorers represented the Boy Scouts of America. They came from 24 States, together with FFA and 4-H delegates.

Operating "junior" chapters, a practice discontinued some 15 years ago so as not to compete with youth groups.

Sponsoring Boy and Girl Scout Troops.

Aiding 4-H and other youth organizations in various ways.

Founding the National Committee on Policies in Conservation Education, now the Conservation Education Association.

Sponsoring summer courses and camps for teachers and others.

Sending teachers and others to state-sponsored conservation workshops and laboratories in many states.

Sponsoring or collaborating on essay contests on a statewide or more localized basis.

In 1953 the League national staff, in cooperation with adult leaders of the Boy Scouts of America, the 4-H Clubs national organization and the Future Farmers of America, developed a proposal for an annual conservation education conference of "Young Outdoor Americans," with a multiple purpose in mind. The League's goal is indicated in the box on this page.

Note.—The author was executive director, Izaak Walton League of America, Chicago, Ill.

Young Outdoor Americans meet annually in conference with leaders of youth organizations, technical advisers, and the Izaak Walton League of America, to discuss recource conditions, problems and needs, in an effort to discover and apply more ways by which youths and adults alike may work with greater effectiveness to help build and maintain a better, more beautiful, more bountiful Outdoor America.

YOA is:

An annual conservation planning conference by and for young people.

Participated in by selected representatives of youth organizations interested in natural resource conservation.

Held in association with the League's annual convention.

A youth conservation *program*, not a separat youth *organization*.

The League's Goal:

To stimulate increased interest by youth in natural resource conservation.

To spur greater attention by adults to assist youth in resource work.

To provide a continuing mechanism for bringing together outstanding young men and women of all youth groups, to exchange ideas and bring more unity of thought and coordination to conservation activities.

To assist YOA delegates to spread widely in their home states the worth of what they learn at the annual conferences.

To help develop from the youth of *today*, potential—leadership in adult organizations *tomorrow*.

The proposal evolved into a program, and this has been carried out, with much success, in 1954 and 1955. As this was written last spring, the financing necessary for a well-considered 5-year program of conferences, and postconferences followup work in the states, was actively being solicited by the League.

In 1954 the YOA program brought together in Chicago, at the time of the League's annual convention, 74 young men and women. Most

were from the three youth groups named, but there was a sprinkling from other organizations. There was at least one from each of the 48 states. In 1955 there were 94 delegates, all older teen-agers, from approximately the same groups. Two states, Arizona and Delaware, sent only one youngster each. Future conferences are expected to consist of a maximum of two per state.

With these were assembled about a dozen official observers and aides from the three youth organizations; a conference manager (Dr. Harlow B. Mills of Urbana, chief of the Illinois Natural History Survey); six specialists in various resource fields enlisted as volunteers to assist Dr. Mills; and League staff members to serve in needed capacities.

In most states Governors' Committees, also volunteers, assisted with the selection of some of the delegates. In future YOA conferences it is anticipated that the Governors' Committees may serve chiefly to promote extensive follow-up work, rather than choose delegates; the latter should, it is felt, be made the responsibility of the youth organizations.

In 1954 a number of Governors' Committees, after consulting with youngsters of their states, sent in suggestions of topics the young people would like to discuss with delegates from other states. More than 70 such topics were suggested. A special committee aided the League staff in collating these. They fell easily into four general groups: cooperation, education, cultural factors, and specific resource problems. It was rather astonishing, though, to find that specific resource topics were a small minority, and that overwhelming emphasis was put by the youngsters themselves upon cooperation and conservation education as subjects they felt most needed consideration.

The following year a special committee, headed by Roland Eisenbeis, of River Grove, Ill., superintendent of conservation of the Forest Preserve District of Cook County, developed a discussion subject: Water Conditions, Problems and Needs of the United States. Background information was furnished the young delegates, as they were chosen, on the four topics, which were unclean water (pollution), too much water (flood), too little water (drought), and watersheds (water management).

A group of delegates with their State flags massed at final meeting.

The mechanics of the conference were interesting, but not necessarily of importance here except in barest outline. At Chicago, after a "kickoff" breakfast at which all received some briefing, the adults from the youth groups chose four young group discussion leaders and four "traveling recorders," and assigned the delegates from their organizations to discussion groups, in approximately equal numbers. Then the young people took over, each group devoting 2 hours to discussing, in turn, the four assigned topics. Adults were on hand only to answer questions asked of them by the delegates, not to dominate or interfere.

Instead of staying with the discussion groups, the recorders traveled from group to group with their assigned topic, thus hearing what each group had to say about it. Thereafter, at a combined meeting of YOA and League delegates, the four recorders made 10-minute reports of the discussions had in the group meetings.

The young men and women were given a farewell luncheon, a feature of which was a parade of State flags held high by the delegates as they marched the length of the banquet hall to the music of their State songs. This was followed by an inspirational talk by Dr. Preston Bradley of Chicago, pastor of the Peoples Church and a League founder.

Thereafter, they departed, to return home with their newly gained information on a vital resource subject, to spread their knowledge as far and wide as their capabilities and opportunities would allow.

It should be said that YOA began as a con-

test idea. The leaders of the youth groups made it clear that a change was desirable, and the evolution of a sound, needed, popular, accepted, and successful conservation education conference program followed quickly.

Today emphasis has been removed from the selection of delegates in contest fashion. Instead, the fullest possible weight is given to home state followup, as it is recognized that the rather costly program can be justified only by the widespread dissemination, back home, of the things the delegates learn at the annual YOA conferences. In this, the League has been assisted and encouraged by the hearty cooperation of the youth groups, by the League's local chapters and state organizations, by Governor's Committees, by offers of help from such large service clubs as Rotary, Kiwanis, and Lions International, and by various other groups of adults.

In at least two states, New Hampshire and Colorado, young delegates of 1954 have organized intergroup councils intended to stimulate more cooperative resource conservation endeavor, and a considerable variety of other post-conference activity has been stimulated elsewhere.

One youth group spokesman informed the League that YOA provided the only national occasion for interorganization consultation on natural resource conservation. The League also has been told that the opportunity given for such consultation was, in some aspects, fully as important to the youth groups as the conference itself was to the young people attending.

All things considered, the League feels it has taken the lead in a worthy youth undertaking, and looks to the future with a great deal of hope, enthusiasm, and satisfaction.

1955 delegates grouped around Izaak Walton League leaders at "parting salute" luncheon. At center is Dr. Preston Bradley, pastor of Chicago's Peoples Church and a League founder.

Tennessee Banker "Talks Up" Watershed

J. L. Crossett loses no opportunity to keep his community alerted and informed concerning the problems of the land. He carries on a continuous and effective campaign on behalf of every little tributary of Wolf River.

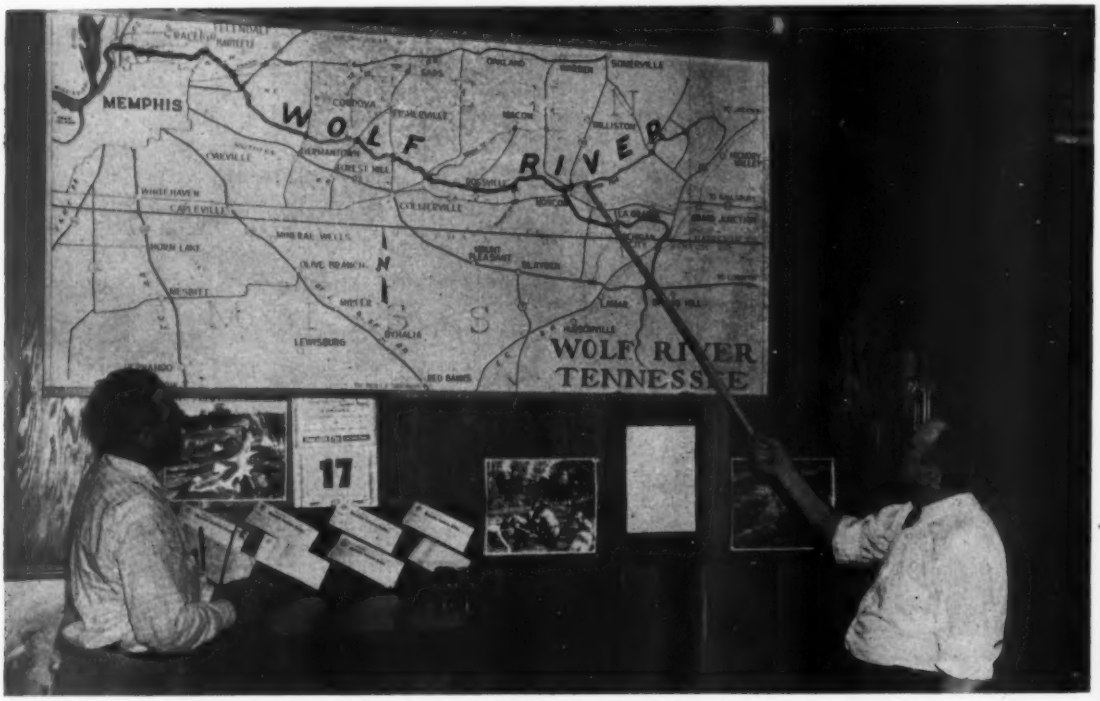
By BARRINGTON KING

WHEN Junius L. Crossett, president of the Moscow Savings Bank, Moscow, Tenn., decided to construct a new bank building, one of the first things he included in the plans was a community meeting room, where meetings could be held to discuss activities in the Wolf River watershed.

That gives a pretty good idea of Crossett's interest in watershed programs in general, and the Wolf River watershed in particular. The 360,000 acres in the watershed has been one of his primary concerns ever since, as a youth of sixteen, he began to notice the steady deterioration of the land in this area.

Crossett estimates that between 125,000 and 150,000 acres in the watershed is providing no return to the community which his bank serves. And from a banker's point of view something should be done about a situation of that kind. So for years now, Crossett has been carrying on a campaign for land improvement.

Visitors coming into Moscow from any direction get a preview of his promotional activities from a long way off, for the town's water tank,



Wolf River watershed's longtime goal under consideration by John Aycock, SCS area conservationist, left, and Junius Crossett, bank president.

Visitors from any direction are told by the town water tank that Moscow is the "home" of the Wolf River watershed.

towering above the surrounding landscape, proclaims in king-size letters:

MOSCOW
Home of
WOLF RIVER WATERSHED

Go into the bank and you are greeted by a map, extending across one wall in the lobby, which traces the course of the Wolf River from its origin in Tippah County, Miss., through Benton County, Miss., and Fayette and Shelby Counties, Tenn., to the point where it empties into the Mississippi River at Memphis. Pictures covering most of the wall space show conservation problems and practices.

Reach for a deposit slip, a blank check, or a pen to write with and you'll notice in gold letters on the white plastic holder: "Moscow Savings Bank, Moscow, Tenn., Sponsoring Wolf River Watershed Program."

Pick up a blotter and you'll see a small version of the map on its back, with these words printed below:

"Your Soil Conservationist Says:—

"Make Your Choice—Hillside erosion and muddy, flooding streams

"Or, Green Hills of Profit and Clear, Placid Streams."

The green pencils you also find at hand further emphasize below the name of the bank that this is the "Home of the Wolf River Watershed."

There are souvenirs for the ladies, too: Nail files in pastel yellows and blues and plastic pie knives, reminding everyone that this is the "Center of the Wolf River Watershed." There's even a plastic fly swatter that promotes the watershed idea as it urges you to "'Fly' into our bank for service."

Sit down for a serious chat with Banker Crossett, and the first thing you know he'll begin to blow up a green rubber balloon. Expanding, it proclaims in large black letters: HOME OF THE WOLF RIVER WATERSHED.

But Crossett's promotional campaign by no means ends with the seemingly unlimited supply of gadgets which he distributes far and wide. These are but the trimmings to keep the development of the watershed constantly in the public mind. The big campaign is out on the land.

It was in 1921 that the landowners of the area first began to take definite steps to solve their land problems. A group of 100 petitioners for a drainage district spent some $10,000 for a survey, only to have the project halted by injunction.

The first attempt to organize a soil conservation district also collapsed when the movement failed at the hearing stage and no election was held. But on a second try, the Fayette County Soil Conservation District was voted and was formally organized in April 1951.

A strong believer in development of the area on a watershed basis, Crossett saw in the creation of the district the first real opportunity to tackle the problems of the watershed systematically. So in June 1951 his bank sponsored a tour of the area to emphasize the watershed approach.

Included on the tour was a large group of Memphis businessmen who saw the possibili-

ties of developing the watershed, among them were representatives of the Memphis Chapter of Friends of the Land. Next came a conference of various interested groups in 1952 at which two organizations were formed to deal with separate phases of the watershed program.

Supervisors and commissioners of the local soil conservation districts in Mississippi and Tennessee formed the Wolf River Watershed Commission, to deal with practical problems on the land. Meanwhile the urban supporters formed the Wolf River Watershed Association which during its first year spent $10,000 on promotional activities.

Robert B. Snowden, of Memphis, is chairman of the association, and Crossett is vice chairman and also chairman of the commission.

With activities organized in these two groups, things began to happen. Residents of small subwatersheds began to organize to tackle their problems as groups. One of the first of these was the Green Acres watershed, which includes land along three small creeks, where a $6,000 community house was built with their own labor and without outside assistance.

The Hays Crossing subwatershed, also involving three small creeks, held a ministers' conference in their community house for consideration of conservation problems. Ministers were asked to deliver at least one sermon a year on conservation and its advantages.

A cooperative forest fire control program was begun in 1953.

The same year residents along several miles of the Wolf River organized a channel clearing project in which trees, snags, and drifts were removed in a community undertaking.

The Wolf River Sportsman's Club was formed at Moscow with divisions of boating, hunting, fishing, and soil conservation.

Civic clubs in towns along the river endorsed the watershed-development idea.

By 1954, 10 subwatersheds had been organized and were participating in the soil conservation program.

The Wolf River Watershed Association provided metal signs showing cooperation in the watershed program for farmers who established three or more practices recommended by local soil conservation districts.

With such sustained interest on the part of local people, it was not surprising that when

Numerous souvenirs help spread the story of the watershed.

the pilot plant watershed program came along, two of the original pilot plant projects were located on subwatersheds of the Wolf River. These are the Mary's Creek watershed in Shelby County, Tenn., and the Sand Creek, in Fayette County, Tenn., where programs are actively underway with technical assistance of the Soil Conservation Service.

The Wolf River watershed, with its 360,000 acres, was too big for a program under either the pilot plant or watershed protection and flood prevention program. But this doesn't deter Junius Crossett in his longtime dream for the watershed's development.

Every big watershed is made up of a lot of little watersheds, he points out. If they can just get enough subwatersheds organized along Wolf River, the big problem will take care of itself. Meanwhile, he's going to continue to plug for the final objective with everything from nail files and fly swatters to water tanks.

POSTER CONTEST.—The Lee (S. C.) Soil Conservation District recently sponsored a poster contest in the graded schools of the district during Soil Conservation District Week. A total of 125 posters were prepared by fifth, sixth, and seventh graders and 26 prizes were distributed. The winning poster was displayed in a show window for 10 days.

LIKES COASTAL BERMUDA.—W. M. Terry, cooperator of Allendale (S. C.) District says: "If it hadn't been for my 50 acres of Coastal Bermuda, I don't know what I would have done this year. I've had 100 cows on it since early spring and it has held up very well under drought conditions. I now have 150 acres of this grass and expect to plant some more next year."

New Ideas Out of Engineering Studies

By EUGENE G. McKIBBEN

WITHIN this last year the agricultural engineering research branch at three locations has initiated work which will be of specific interest to soil conservation workers. This work is in cooperation with the soil and water conservation research branch.

At the Tillage Machinery Research Laboratory at Auburn, Ala., basic studies are under way on the relationships between types of tillage, transport and traction equipment and the methods of their use, and the effects on the soil's physical characteristics. Here also more directly applied investigations are underway on the effects of variations in disk blade design on performance, and on the effects of various combinations of tractor tire width and height on performance under varying operating conditions. The latter is at the request of, and in cooperation with, the tractor tire subcommittee of the Society of Automotive Engineers.

At Iowa State College cooperative research is being done toward devising new and improved equipment and methods for conservation farming in the humid Corn Belt areas. Of current promise is a "ridge farming" plan for corn.

At Pendleton, Oreg., cooperative research has been started on the development of special equipment for conservation farming practices in the dryland wheat and pea-producing area.

Note.—The author is chief, agricultural engineering research branch, Agricultural Research Service, Beltsvile, Md.

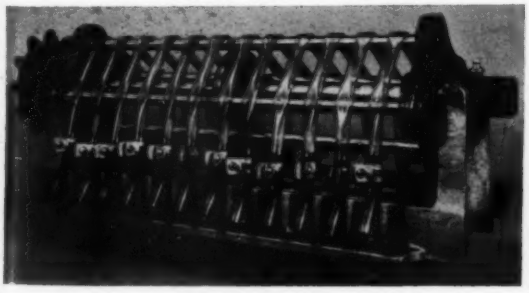


Figure 1.—Modified Tennessee hose pump.

No. 6

This is the sixth of a series of articles to appear from time to time in explanation of the various phases of research being conducted by the Department of Agriculture on problems of soil and water conservation.

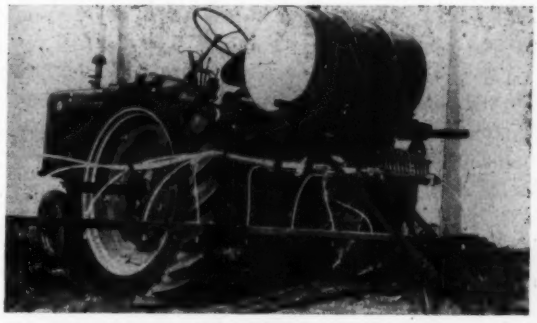


Figure 2.—Commercially built hose pump with mounting brackets and independent ground drive to give application of fertilizer solution proportional to distance traveled.

Progress findings will be made available. In the meantime, we will welcome suggestions from any soil conservationists who may have an opportunity to visit these projects.

In addition to projects directed specifically toward soil and water conservation problems, there are many other projects which lead to findings of significance to conservation.

As an example is the modified Tennessee hose pump shown in figure 1. This pump is being used as a metering unit for the application of liquid fertilizer. Important features are a discharge rate proportional to speed over the usual operating range, and a provision for multiple-discharge connections at relatively low cost. The parts in contact with the fertilizer solution are corrosion-resistant stainless steel and plastic. No moving metal parts are in actual contact with the solution being pumped.

Figure 3.—Use of portable posts for electric fence to control rotation grazing.

Tests in North Carolina last season gave very good results and the pump is commercially available this season. Figure 2 shows a unit mounted on a farm tractor with independent ground drive.

Preliminary tests in the laboratory indicate that it may operate satisfactorily against low pressures, perhaps up to 20 p.s.i. Additional research in laboratory and field is needed to establish the pump's possibilities and limitations.

This pump was invented and patented by H. A. Arnold of the University of Tennessee and the first model was built in 1944. During the years immediately following it had but limited use, partly because of its relatively short

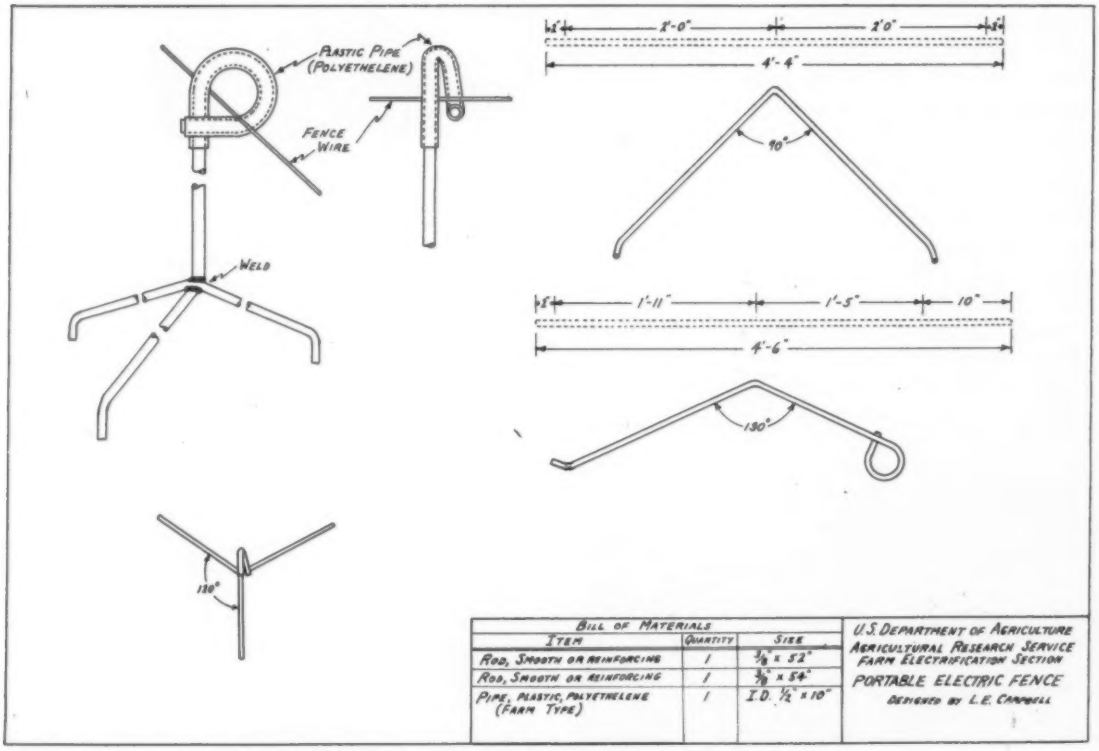


Figure 4.—Details for construction of portable post for electric fences.

Figure 5.—Bunker silos at Agricultural Research Center, Beltsville, for studying feeding and engineering problems of this type of storage, and particularly for the determination of the amounts and causes of losses and the development of means of reducing such losses.

life and the erratic, unsatisfactory performance of the material then available as hose.

When a project was initiated in 1953 in cooperation with the North Carolina Agricultural Experiment Station for research on the development and improvement of equipment for metering corrosive solutions through a number of discharge hoses and directly proportional to the distance traveled, the Tennessee hose pump was one of the devices studied. Modifications were developed and laboratory and field tests made at Beltsville and in North Carolina by Charles W. Gantt, Jr. and Walter C. Hulburt, of the Agricultural Research Service, and Henry D. Bowen, of the North Carolina Agricultural Experiment Station.

Modifications which improved the performance of the pump were the use of a plastic (vinyl chloride acetate) for the pump hose, individual adjustments for hose tension, and the addition of a center wheel to support and give continuous rotation to the reel rollers mounted in sealed ball bearings. Laboratory tests indicate that the operating life of the plastic hose sections should be between 300 and 400 hours. At present prices, the replacement of hose sections for a 12-outlet pump can be obtained for less than 5 dollars.

The recommended speed range is 50 to 400 r.p.m. Within this range and with correct hose tension, the discharge per outlet is 0.04 gallon per revolution. A USDA leaflet on this pump is being prepared and should be available soon.

Still another product of our research is the portable post shown in figures 3 and 4. This ingenious post offers the possibility of readily changing electric fence locations for rotation grazing or other pasture management practices. It is made of a ⅜-inch steel rod, either smooth or reinforcing type. It uses ½-inch plastic (polyethelene) pipe as an insulator with a design that allows the post to be readily installed at any point along a tightly stretched fence wire without disturbing the wire or adjacent posts.

This plastic, which is commonly used for cold water lines and thus is readily available, is an excellent insulator, particularly during foggy or rainy weather. It is essentially nonwetting. Other types of tubing should not be substituted without first determining their insulating qualities.

This portable post was designed by Lowell Campbell of the farm electrification section of ARS. It can be made readily by local welding shops or even by many farm shops. While this design has worked quite satisfactorily in field tests, it should not necessarily be considered as the final form. It is expected that shops and farmers will make such changes as they believe will result in a more effective post for their local situations. It is hoped that as the possibilities of portable electric fences for grassland management become more widely known and

(Continued on page 40)

New Land For New People

By NEIL MICHAELSON and GEORGE A. WOODRUFF

DURING the summer of 1953, the Soil Conservation Service, at the request of the Board of the Alasaka Soil Conservation District, made a survey of the agricultural potentials of land in the Susitna Flats area across Knik Arm from Anchorage. At that time, very little information was available on the agricultural value of this area which was being used as an antiaircraft gunnery range.

Climatic conditions must necessarily be favorable for agricultural operations. Here in the Susitna Flats the climate can be considered similar to that of Anchorage. The average annual precipitation is 14.55 inches, with 11 percent of this falling as rain during April, May, and June, increasing to 47 percent of the total precipitation from July through September. Lack of moisture during the early summer season does not cause crop failures. However, yields may be adversely affected during some of the drier years. The average growing season extends over a 115-day period.

The Susitna Flats are composed primarily of level to rolling uplands adjoining tidal flats along the north shore of Cook Inlet and the eastern edge of the lower Susitna Valley. This area extends northward and eastward for a distance of approximately 10 miles to a belt of steep hills and ridges that lie between the Big Lake area and the Inlet shores near Anchorage.

A survey party of four men was organized at the Palmer headquarters of the Soil Conservation Service for the job of mapping the soils of this area. Transportation was the main obstacle to be overcome in mapping this inaccessible region. There were no roads or trails for moving men and supplies into the region. Consequently, the general plan of attack included trail-building for overland travel, boat trips, and trips by float plane to numerous lakes which dotted the area.

A small bulldozer was used to build a truck trail for jeeps from the road's end at Big Lake across the Susitna Flats to Horsehose Lake at the southern extremity of uplands. The "dozer" operator worked his way behind a blazed trail through the hills and down across the flats, establishing base camps along the way. Black bear were attracted by his food supply and cooking efforts. In one night's foray, Bruin stuck his head in through the tent flaps as a matter of introduction.

The survey crew departed on a boat trip down the Little Susitna River to the Inlet to map isolated uplands along its banks. An obliging Alaska Railroad section crew loaded the boat, supplies, and men onto a speeder at Pittman and wished them a good trip as they helped slide the boat into the river at the Houston bridge. This crew mapped a large area of virgin country and had many experiences in swift, shallow water with hidden rocks, large log jams, and "sweepers." One of the illustrations with

Survey crew lunching on gr[illegible]r, Little Su

Note.—The authors are soil scientists with Agricultural Experiment Station and Soil Conservation Service, respectively, Palmer, Alaska.

this article shows the crew pausing for lunch on a gravel bar. Escapades with bear and moose, as well as evenings of good fishing, added to the enjoyment of the trip. The bore of an incoming tide and rough waters of the Inlet provided excitement for the crossing from the river's mouth to the Anchorage shores, where a rough, dirty, and weary crew climbed out on the dock.

The final land capability maps are made from aerial photographs, and are used for guiding settlement in the area and as a basis for later work in planning the farm enterprise for maximum conservation of the soil and its fertility.

Survey of the main body of land in the Susitna Flats area followed the river trip. The rough "dozer" trail was about all that man and the jeep pickup could take. The trail led over steep hills, along ridge tops and across the flats. After a few days of rain, the slick trail over these hills presented a real challenge to stamina. Les Green, Palmer bush pilot, flew the surveyors from lake to lake during the course of the survey. The men took many trips on foot to other sections of the flats.

Soils in the Susitna Flats which have agricultural value are the well-drained mineral soils

gr[illegible], Little Susitna River.

Oat field with snow covered mountains in background, half a mile east of Palmer.

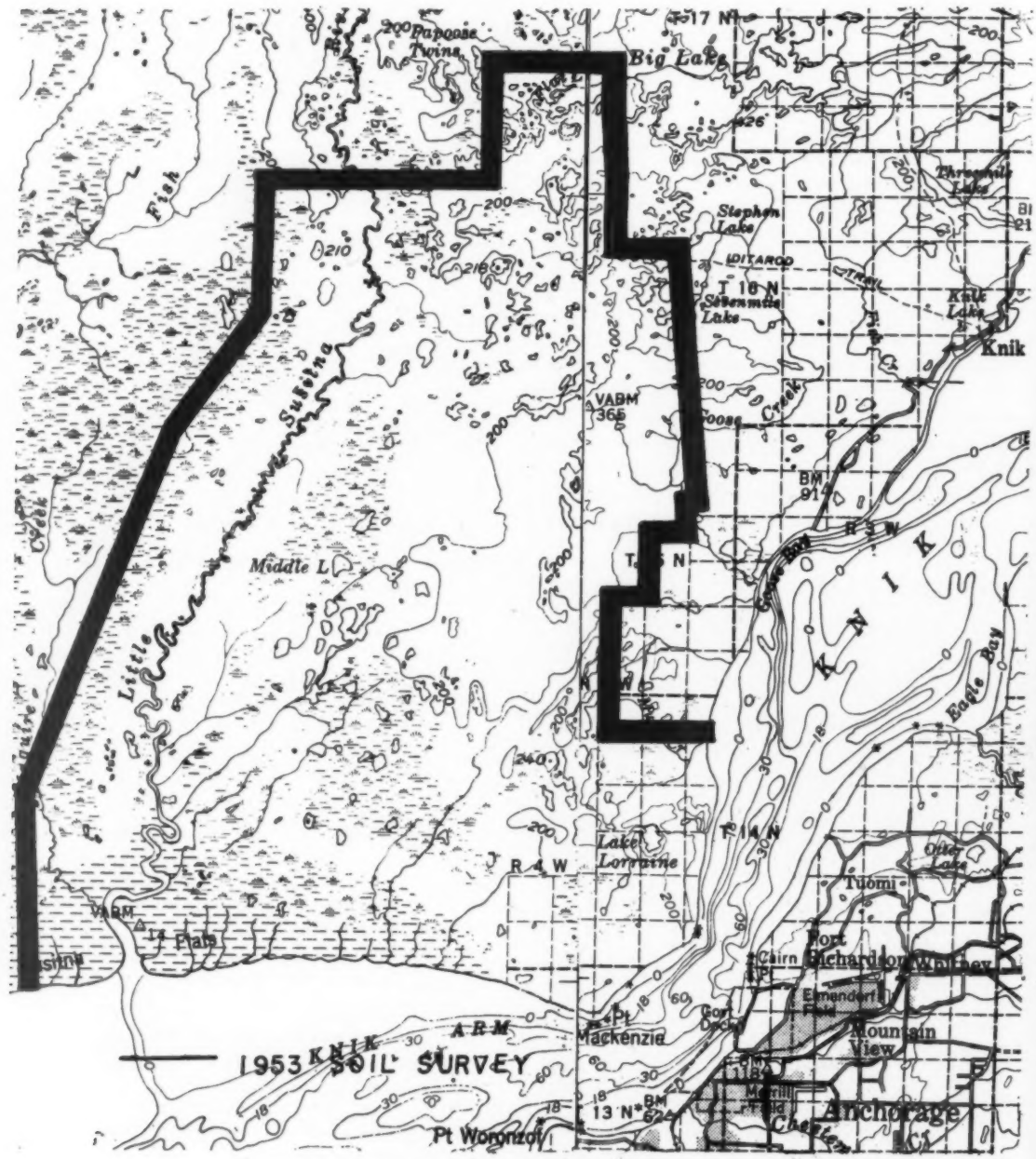
occupying level to rolling uplands. The forest cover is mixed spruce and birch that in the Horsehoe Lake area shifts to a dense birch stand of marketable size. These soils have developed in a deposit of medium-textured, silty material laid down by wind and water over the gravel plains of the Horsehoe Lake area and the sandy terraces along the Little Susitna River to a depth of from 10 to 20 inches.

What soil will the homesteader find in this virgin area? This question can best be answered by the following brief generalized description of a soil profile from the Horsehoe Lake area:

Depth in inches below surface of mineral soil.	Physicial characteristics.
Overlying organic mat	Dusky red accumulation of leaves, stems, and roots in upper section; sometimes underlain by a partially-decomposed layer of this material.
0–1	Ashy gray layer of mineral soil having a loose, silty texture, and granular appearance; contains a large amount of plant roots.
1–3	Dark reddish-brown layer of soil having a silty texture, granular appearance, and containing a large number of plant roots.
3–17	Dark yellowish-brown layer, loamy textured, composed of a dense body of fine-grained soil particles. Root penetration terminates in this layer. Color is graduational from darker overlying layer to lighter material below.
17–25	Olive brown layer having a dense-bodied appearance, uniformly sandy-loam in texture, representing the original mineral material of the deposit from which the soil developed.
25 plus	Gravels, sands, and cobbles.

The upland soils are low in fertility and require heavy applications of nitrogen, phosphorous, and potash for satisfactory crop produc-

tion. These relatively shallow soils are very permeable to downward water movement and are considered droughty during the period of low rainfall in early summer. Irrigation may be needed for top yields of field and garden crops. The area contains numerous lakes which could provide a source of water for irrigation purposes. When the land is cleared and farmed, sound conservation practices must be followed to retain the soil and maintain a favorable level



This is the Susitna Flats region.

The famous Matanuska Valley, with Knik Glacier in background.

of production.

The non-agricultural soils found in the flats are peats, mucks, and tidal silt deposits. Peat and muck soils occupy a large part of the land between Horseshoe Lake and the Little Susitna and also show up as small scattered bodies along the riverbed. The tidal silts occupy a large acreage adjacent to the Inlet and upstream along the river to the point of high tide. Peat and muck soils have little agricultural value. Peat is composed of raw plant remains and is cold and wet. Fertility is low and would remain the same after drainage. Muck is a wet mixture of decomposing plant remains and mineral soil. Some of these mucks, depending upon location, could be drained. The tidal silt deposits can produce moderate amounts of forage for livestock.

Forty-nine percent of the 124,870 acres surveyed in the Susitna Flats has soil suitable for agriculture, a large part of which is in a block of land north and east of Horseshoe Lake. The

Cabbage on Max Sherrod farm. A newly planted windbreak is at the left; strip of grain planted for wind protection at right.

birch stands of this area have economic value as flooring, interior finish, wall and furniture veneer, and handles for tools.

From a consideration of the soil and climate of the region, there is no apparent reason why crops would not grow as well as in the Anchorage area nearby, where livestock, grain, and truck crops are raised.

Here is land for young men and women who are interested in carving a farm out of the wilderness. There exists an opportunity for the development of agricultural and forest resources in this corner of Alaska.

Here is, indeed, an abundance of new land for new people. Alaska will be hearing more about the Susitna Flats and its potentialities in the near future.

An evening's catch from the river.

ENGINEERING STUDIES

(Continued from page 35)

used that effective commercially made portable posts for electric fences will become available.

Research is also being done on silos. In spite of its advantages as a feed, the use of silage has increased slowly. The 8 million tons of grass silage used in 1951 represented only 3 percent of the total forage crop harvested. This relatively small use is thought to be due to cost of structures and equipment for completely mechanizing the harvest, storage, and handling of silage in good vertical silos; and uncertainty as to the extent of losses in amount and feed value when stored in the less expensive and sometimes more convenient horizontal silos.

Horizontal silos are cheaper to construct than upright silos. They do not require elevating equipment for filling, and they are easily adapted to self-feeding of livestock. On the other hand, losses in trench, horizontal above ground, and stack silos as generally handled usually appear to be excessive. The wide variation in losses reported indicates that farmers do not estimate such losses accurately. Changes in the weight and volume of decayed silage, and the hidden losses from fermentation and seepage, make an accurate estimate of losses by the farm user difficult if not impossible.

The bunker silos shown in figure 5 were constructed at the dairy farm on the Agricultural Research Center at Beltsville, Md., for cooperative research on the making and storage of silage by the agricutural engineering research branch and the dairy husbandry research branch. The picture shows one silo being filled with long grass, the other with chopped grass from the same fields. The engineering phases of this work are concerned with minimizing the losses from the field to the feed bunk. Factors influencing these losses include methods and equipment used to harvest, store, and feed the material; the structure in which it is stored; the way in which it is packed in the silo; and the effectiveness of material used to seal the surface of the silage. The study includes measurement of the loads on bunker silo walls.

Dairy husbandmen are interested in the losses in feed value as affected by storage conditions, fermentation, leaching, and seepage. Feeding trials are used to determine the feed value and palatability of the silage.

Financing Conservation Farming

By BUIS T. INMAN

IMPORTANT to the farmer in deciding on the soil, water, and plant conservation plan he will adopt is how best to finance the changeover. Conservation farming often means foregoing immediate income in order to increase future income. Such deferment of income can involve a critical decision, particularly for farmers whose resources are depleted or whose farms are small. It may limit the amount of current income that can be used in other places in the farm business; or it may limit the use of income for family living.

Answers to some of the questions regarding investment requirements, costs, added returns, and timing of costs and returns from soil and water conservation practices are being found through research of the production economics research branch, Agricultural Research Service, in cooperation with a number of state agricultural experiment stations in the Midwest.

On the rolling lands of central Indiana the alternative conservation cropping systems for 160-acre farms are limited. There, the most profitable cropping system, and one that provides adequate conservation measures, requires that half of the rolling land and a fourth of the level land be in forage crops.[1] When less than half of the rolling land is in roughage crops, crop yields are reduced severely even though contour farming and grass waterways are used. Feeder cattle and hogs, or dairy cattle and hogs, are the most profitable livestock system. The livestock and cropping system recommended would increase the net income from a farm by more than $2,500 over that realized from a farm under the existing system. The farmer would need from $13,000 to $17,000 additional capital to make the changeover, depending on whether feeder cattle or dairy cattle were kept. This capital would be needed for repair and alteration of fences and buildings, purchase of machinery, line and fertilizer, and increases in livestock, feed, and supplies.

Rather than provide for the additional investment from current income, ordinarily the farmer would be better off financially to borrow money, make the changeover to a soil-conserving system of farming in a few years, and then repay the loan from his increased earnings. By borrowing, the final plan would be achieved more quickly and the debt paid off rapidly. The plan requires 11 years for all major farm investments. Cash farm income will be higher during this period except for 1 or 2 years in which purchases of fertilizer will be large.

Farmers on small farms and with relatively low incomes often experience difficulty in adopting a conservation system of farming. Frequently, by clearing a few acres of land or draining wet areas, they can overcome much of this difficulty. By improving more productive areas they can seed down erosive areas to pasture or have a smaller acreage of grain in the rotation. Unpublished data for the Saginaw-Thumb area of Michigan indicated that only 62 percent of the cropland was well drained. About 16 percent needed a complete tile job and 22 percent needed tile between present lines. Investments in tile of $100 per acre paid for themselves in 5 or 6 years through increased farm returns. Drainage increased per acre yields 60 percent

No. 7

August's special issue on farm woodlands interrupted the research series. We are catching up this month by offering two articles on investigations which are being conducted by the Department of Agriculture on problems of soil and water conservation. This is No. 7.

Note.—The author is assistant head, northern field research section, production economics research branch, Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C.

[1] Janssen, M. R., and Robertson, L. S., "Economic Effects of Applying Conservation Measures on a Rolling Central Indiana Farm." In press.

and also permitted the growing of higher-return crops. Cash-crop farmers were a long way from achieving the 20-percent minimum of full-season sod crops currently recommended for the area by the local soil conservation districts.

A small dairy farmer in north-central Wisconsin on a 160-acre farm of gravelly and sandy loam also established a conservation system of farming by clearing land. His plan provided for clearing 18 acres in 3 years and converting 10 acres of steeply sloping cropland to pasture.[2] In changing to a conservation plan the farmer reduced his annual acreage of grain by 3 acres but he maintained his production of grain through better land treatment. By enlarging his dairy herd to utilize the additional forage produced, his labor income was increased by more than $700. The cost of land clearing, including bulldozing, farm machinery, and family labor, was $48 per acre.

St. Clair and Madison County, Ill., farmers near East St. Louis, who practiced a high degree of conservation farming during a 10-year period averaged $6.98 per acre more than those with comparable soil resources but a low degree of conservation farming.[3] Similarly, in McLean County, in central Illinois, conservation farming showed an advantage of $4.77 per acre, while on more rolling farms in northwestern Illinois the advantage was $6.41. Wise land use was an important part of the conservation system of farming. The high-conservation farms had a higher proportion of their tillable land in hay and pasture. These included deep-rooted plants, particularly alfalfa and sweetclover. Greater use of stripcropping, contouring, terraces, grass waterways, and buffer strips also permitted a larger acreage of cultivated crops without serious soil erosion. Both crops, and livestock to utilize the crops, contributed, along with good management, to the higher incomes of the high-conservation farms.

On the slowly permeable soils of northeastern Illinois, high-conservation farms earned in 1954 approximately $5 per acre more than low-conservation farms with comparable soil resources. There, a suitable cropping system for many farms requires that 40 percent or more of the cropland be in forage crops. These farms must also have a sufficient number of well-managed livestock to utilize the forage.

In an attempt to answer the question of costs and returns of individual conservation practices, data are being collected for a number of areas. In Illinois studies, terracing cost $3 to $5 per 100 lineal feet. In Northeastern Illinois, grass waterways averaging 40 feet wide, required an outlay of about 10 to 21 cents per linear foot. A 4-year study on 270 farms in Illinois showed that man-labor and power and machinery costs were $24.50 per crop acre when farm operations were conducted on the contour and $26.08 when not on the contour. On the returns side, a 7-year record of the effect on yields of crops grown on the contour in contour strips or on terraced fields was compared with the yields of customary up-and-down-hill cultivation. The results were as follows:

Crop	Yield increase from contouring		
	Percent	Bushels per acre	Value
Corn	12	6.9	$7.38
Soybeans	13	2.7	5.64
Oats	16	6.9	4.69
Wheat	17	3.4	5.37

In summary, conservation systems of farming in the central Midwestern States generally require an increased proportion of cropland in forage crops and a well-managed livestock program to utilize the additional forage efficiently. This kind of program means a considerable increase in farm capital, and 3 or 4 years of the initial installation period before conservation farming increases net farm income. Crop yields, however, increase in the first year.

Several alternatives are open to farmers for providing the additional capital required in developing a conservation plan. Farmers may be able to provide the capital from savings or from current income by reducing farm and family expenditures. Livestock enterprises may be expanded by saving breeding stock from farm herds. When it is profitable to proceed more rapidly, borrowing may be necessary. Some commercial credit agencies are well informed as to the costs of and the returns from conser-

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[2] McNall, P. E., and Anderson, H. O., Economics of Land Improvement as Applied to Two Farms in Lincoln County, Wisconsin. Dept. Agr. Econ., Univ. Wis. August 1954.

[3] Sauer, E. L., and Case, H. C. M., "Soil Conservation Pays Off." Ill. Agr. Expt. Sta. Bul. 575. April 1954.

Forty Years as a Tree Farmer

By C. T. PROUT, Jr.

ANYONE who owns or operates land suited to growing commercially valuable forest trees can practice tree farming. H. H. Gaston of Spring Hill, Ala., is a good example.

It was early morning when we drove through the front gate and stopped in the side yard. By the time we could get out of the car, Gaston was there to greet us. We were foresters—he a tree farmer. And he was interested in showing us his tree farm. Maybe we could tell him a better or cheaper way to do things, or perhaps we could give him a practical suggestion for increasing production.

The first thing we did was to see his tree farming tools. They were few and simple—axes, hoes, rakes, flap (belting a foot square with a 5-foot handle attached), pruning saw, tree planting tool, and a back-pack fire pump, all loaded on a four-wheel drive Army surplus jeep. We were not given much time to handle them—we had to "go-to-the-woods."

During our jeep ride over his tree farm, Gaston told me his story. His early life was spent as an itinerant laborer in sawmills, on section gangs, and as general roustabout throughout the Southern States. During his travels he kept looking about to see where he might settle down eventually.

Growing trees had always fascinated him. He was conscious of trees wherever he went. "It looked to me like the trees in this area were healthier and growing faster than anywhere else I had been," he told me. So, he, like Brigham Young on looking at the valley of the Great Salt Lake said: "This is the place."

Gaston settled in Spring Hill 40 years ago. He first bought and operated a small farm. As he could, he bought more land—timberland. Here he raised his two children. Fourteen years ago he started planting trees on the land that did not have pine on it already. He told me: "I had learned by then that pine trees were my best crop."

Note.—The author is woodland conservationist, Soil Conservation Service, Mobile, Ala.

Pruning improves quality of pine saw logs and is a routine practice on the Gaston farm.

He bought land with trees already growing on it, and land without trees. From that with trees he cut a few from each acre "selectively"—those that could be harvested and still leave plenty for later years. On that without trees he planted young pines—500,000 of them—350,000 by hand until last year. Then he borrowed one of those tree planters—"But I don't

let anybody else run it. I want to know my trees are planted right."

Not only must his trees be planted right, but all his trees—both "natural planted" and hand planted—must be helped to grow bigger faster. Fire lanes—clean plowed strips, 6 feet wide between the rows of planted pines and wider around the edges of fields, were in evidence. He cut out the "no good" trees, those of poor form or diseased, and sold them when they were ready for market, "To give my good trees more room to grow." He pruned his best trees and cut off the lower limbs to make higher quality lumber because he thus gets more money for the trees. He said, "I used to keep an axe on my plow so when my mule got tired I could go out in the woods and work while he rested."

"How long can a man work like you are working?" I asked, thinking maybe his 68 years was about the limit. "This isn't hard work, it's the easiest thing I ever did in my life. Besides, if I didn't have my woods to walk through, wh[illegible] I'd die in no time. I'll live to be a hundr[illegible] years old, if I just stick to my woods. If I l[illegible] a week go by without going in my woods, I ju[illegible] don't feel good."

I said, "I guess you are not thinking of sel[illegible]ing your 2,700-acre tree farm?" "Nope, not much anyway. Last week there was a man here from one of the paper companies wanting to buy it—said he'd give $150,000. I told him it was worth more than $200,000. How did I figure it? Very simple. I have 800,000 trees and on the average they are worth 25 cents apiece—that's $200,000. Why I'd be foolish to do that—I figure that each day each acre is worth 10 cents more than it was the day before."

Gaston knows he has a good investment. His health is good, financially, physically, and mentally. And he is living in the presence of the trees he loves.

The Soil and Human Health

IT is always an inspiring experience to meet with Friends of the Land. They are a diverse group representing many businesses and many professions but sharing a common interest in our natural resources. They are bankers and housewives, industrial tycoons and physicians, garden clubbers and civic leaders. What makes them special is that they give of their time and mental reserves to wrestling with the problems of health—soil and human.

For the fourteenth consecutive year Friends of the Land conducted in June an institute dealing with soil, food, and health relationships. Again, the place was Chicago; and again, the Illinois State Medical Society and the Illinois Academy of General Practice were partners and consultants. Together, the sponsors presented a program which brought to Chicago speakers from colleges, research centers, and laboratories from as far distant as New York and Washington and as near as the great Medical Center in the Windy City itself.

"We cannot separate soil, water, and man," said Ollie Fink, program director of Friends of the Land, in sounding the keynote. "No one resource is an independent or self-sufficient unit. They are all bound together. We begin with the headwaters, each little stream, and many times we thus largely solve the problems downstream. The initiative must come from the people, for we all live on a watershed."

Friends of the Land has helped us move up in our thinking, has helped to create a favorable climate for the conservation job. And the 1955 nutrition conference exemplified how Friends of the Land itself has advanced; in the words of its president, Dr. Jonathan Forman, "This is not a meeting where the glories of rural living are extolled but where we cope with the sweat and tears of soil losses and nutritional deficiences." Another speaker, John J. Miller, director of biological research for the J. B. Roerig Company, mentioned the close identification of the institute with the medical profession, where "broad issues of conservation are related to what goes on in a doctor's office."

Dr. Robert S. Kesel, of the College of Dentistry, University of Illinois, expressed some

alarm at the rise in tooth decay, citing a 15 percent increase between 1929 and 1949 among entering students at the University of Minnesota. He discussed the attacking forces and the conditioning factors that may be involved. Among the latter, he listed climate, water supplies, emotional tieups, endocrines, individual health, the physical character of food, the effect of mineral elements, vitamins, and proteins in the diet. He warned that teeth are decaying 4 to 5 times the ability of dental manpower to repair the damage.

Dr. Firman Bear, soil scientist working on an emeritus basis with Rutgers University, entered on two notable discussions of the soil's contribution to life. Pointing out that a family's meals once were the product of one soil, he noted that today a breakfast may include butter and milk from Wisconsin, bananas from Yucatan, coffee from Brazil, salt from Michigan, sugar from the Philippines. "Soil puts its mark on mankind," he summarized. "But *what* soil?"

Mankind, he conceded, benefits from food produced on soil that contains a variety of organic matter, rich in all nutrient elements.

"I am convinced," said Dr. Bear, "that man is an inorganic entity as well as an organic entity. Yet most of our studies deal with the organic aspects. Any study of an individual element by itself is relatively worthless. The spectograph has an interesting ability to show you all the content at one time. I'm interested not in potassium, or calcium, or magnesium, or sodium by itself. To me, they are significant in terms of their combining weights. Any consideration of them in terms of percentages can be utterly misleading. It is the mass-action effects that are important. A New Jersey potato farmer noticed an extensive magnesium deficiency and applied potassium fertilizer—then he was in real trouble, for he threw his field out of balance still further."

Dr. Bear expressed concern over mounting world population, that of the United States in particular. Here, he said, our numbers are increasing 1.7 percent a year, faster than the average for the rest of the globe. Our country is not all in a humid climate; there is much that classifies as desert or semi-desert. It will take 50 million tons more food to satisfy our needs by 1975. And yet, there is a hopeful note.

Dr. Bear expects science to supply the answer to our food problems, just as it has supplied the answer in the past. He pointed to the accomplishments of mechanization, synthetic fibers, the use by crops of nitrogen taken from the air, the advances in insect and weed control, the progress in irrigation in both dry and wet areas, our knowledge of how to limit dust storms. He expects our farmers to increase production to meet major needs by vertical expansion rather than horizontal expansion. He expects "bumper" crops to be the rule rather than the exception. He pointed to the disadvantage of feeding hogs corn and then eating the hogs. He spoke of the forests tremendous reserves of food. "I think the time will come," said he, "when we shall know the secret of the chlorophyl molecule—and if we ever get that under control we can feed any number of people." Feeding the future's larger populations, he held, is "largely a matter of energy. Have we enough? We are not using today the energy of the sun, waves and tides, the atom—but I think we will."

The theme of this year's institute was well put by the speaker who declared: "Conservation of natural resources starts with you. Take care of your own appearance, get rid of trash, dress up your yard. Then get out beyond your own person and look the country over. If you see any river running red, any gullies, do something about it. Make your country beautiful! In the words of David Starr Jordan, we must "stir up a lot of absurd enthusiasms."

—WELLINGTON BRINK

FINANCING CONSERVATION

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vation farming and are ready to make the necessary loans. Farmers who cannot obtain suitable credit for soil and water conservation on reasonable terms from commercial or other sources may obtain the necessary credit through a new governmental program administered by the Farmers Home Administration. It makes loans available for soil and water conservation for use by farmers or groups of farmers to pay cash costs of materials, equipment, and services for such land-improvement measures as construction and repair of terraces, establishment and improvement of permanent pastures, fencing, drainage, and ditching.

Educating Farmers in Farm Woodlands

By A. M. SOWDER

WHEN we see a farmer who is successful with his trees, we are prone to wonder just what aroused his initial interest. Skill in woodland improvement or tree planting is a result of some form of the educational process.

What was the incentive? Was it love of trees, the prospect of added income, the influence of an agricultural program, attendance at a meeting or demonstration, the reading of a newspaper or magazine, or the suggestion of a neighbor?

I posed this question last summer to the owner of probably the most publicized improved farm woods in America—O. K. Smith, of Kootenai County, Idaho, who since 1935 has had 70 acres of white pine trees under intensive management. Here are the answers: Smith loves trees. Properly managed, they bring him increased income. They improve the looks of his farm and, pruned, they help reduce the fire hazard. On the main route to and from town he passed by a demonstration woodland improvement project which was established about 1930 under the direction of the county agent and marked by a large 3 by 5 foot sign. Thus, he had a variety of reasons to engage in farm forestry.

Smith does his own timber harvesting, markets the products to effect close utilization, carries on a fence post treatment project, and plants trees when necessary. He allows no fires, permits hunting upon request, and at four score years of age is looking forward to continued wood crops from his farm woodlands.

O. K. Smith has been a model of cooperation with public and private agencies—the Soil Conservation Service, the Forest Service, the Extension Service, the University of Idaho, the State Forester, and the American Forest Products Industry. Local Soil Conservation Service foresters found Smith's woods a show me place, and when the AFPI Tree Farm program was launched O. K. was one of the first to join.

There is a vast amount of educational work yet to be done among farmers to put their farm woodlands in shape, to say nothing of the tree planting job, wood preservation, and other projects which come under a farm forestry program. In general, farm forestry is the most neglected of all farm enterprises. Yet it could be one of the most profitable.

According to most recent estimates, only 15 to 20 percent of the woodland area owned by farmers is under good forest cutting practices. The remainder is classified as being fair to "poor and destructive." Of the 139 million acres of commercial farm woods, over 100 million acres fall under the fair to poor category. Not more than a fifth of the farms needing windbreak protection have an adequate tree barrier for farmstead and field.

Are farm woods worth worrying about? Definitely, yes! They constitute 40 percent of our private commercial forest and produce one-fourth of the saw log requirements of the nation, about one-third of the pulpwood, and the bulk of fuelwood, fence posts, maple syrup, and similar products used on the farm and for sale. In value, wood ranks tenth among all farm crops, bringing in about 700 million dollars a year to farmers. The farm woodlands of America are valued at 2 billion dollars, estimated at 1946 selling prices. The trees on this tremendous capital value in land through annual growth can bear interest returns from 5 percent to 15 percent a year.

A well managed farm woodland, on good forest soil, adequately stocked with desirable trees, can easily produce several times as much as the untended woods which are usually heavily cutover. Thus, with the advantage of being

Note.—The author is extension forester, U. S. Department of Agriculture, Washington, D. C.

Sawyer County, Wis., 4-H boys and girls meet with S. J. Uhrenholdt in his farm woods near Hayward. Uhrenholdt was 81 years old when this picture was taken. This woods is now designated State-owned timber harvest forest.

close to markets and generally on better forest soils than the mountain forests, American farmers have a potential but yet unclaimed annual revenue of several times the estimated 700 million dollar revenue now obtained. A fly in the ointment is the fact that some 3¼ million individual farmers own these farm woods, which average only 42 acres in size. How are we going to reach them?

The question could be asked, "What does the planting of trees add to the value of the farm?" Records show that a good windbreak or shelterbelt adds from $500 to $1,500 to such value. This figure is concurred in by farm real estate appraisers. Such plantings provide some forest products, conserve moisture, reduce home heating and livestock feeding costs, furnish food and cover for wildlife, and supply protection to the soils and crops.

Granting the need for more attention to the two major farm forestry activities—woodland management and tree planting, how are we going to get the job done? For one thing, we need to channel more such information to farm papers. The basis for our articles could be bulletins, research notes, progress reports, and the like. One of the best means extension has for reaching farm people is through demonstrations, meetings, tours, and the like.

Seaman A. Knapp made this statement: "What a man hears, he may doubt; what he sees, he may also doubt; but what he does, he cannot doubt." Our first job is to arouse a farmer's interest to attend meetings or demonstrations. Once there, he sees for himself but still may doubt what can be accomplished on his own farm. However, if we can get the farmer to initiate farm forestry practices on his own farm, he is well paid for his efforts and he no longer can doubt.

In some instances it is possible to give extension help to individual farmers but more people can be reached through group meetings and demonstrations. This enables us to ac-

complish much more in our efforts to help farmers help themselves—a fundamental philosophy of the extension program.

One of our best sources for getting a farm woodland job done is through the rural youth, especially through the 4-H, Vocational Agriculture, and FFA, together with the Boy and Girl Scouts conservation programs. In 1953 some 35,000 boys and girls completed 4-H forestry projects and another 200,000 4-H Club Members received definite training in forestry. Under the 1954 National Conservation Good Turn Program, Boy Scout headquarters reported 38,125 projects in forestry. Not infrequently, through our work with their youngsters, parents have been induced to lend a hand in adult programs. One of the most effective activities for reaching teen-age youngsters is the school forest program where the students actually help with planting, improvement, and harvesting. These youngsters are the future custodians of our forest resources and eventually will manage our farm woodlands for continuous production.

Farm forestry extension work among farm people is carried on through county agents. That's at the tree roots. Records show that in 1953, 1.2 percent of their time was devoted to forestry. However, some forestry would have necessarily been involved in allied lines of work such as wildlife, soil and water conservation, forest fire prevention, and program planning. Extension training schools and workshops to include farm forestry are often made available to extension agents where more technical training has not been possible. This extension work is headed by state extension foresters employed by the land-grant colleges and there are 75 to 80 of them at the moment. All but three states carry the extension forestry project. Some states have up to four extension foresters.

Extension forestry goes hand in hand with the technical service program. Besides the helping hand of the United States Department of Agriculture, there are many other agencies engaged in these two categories of farm forestry. These may be mentioned—with apologies to those which space forbids listing: American Forestry Association; American Forest Products Industries; American Pulpwood Association; American Tree Association; Forest Farmers Association; Forest Industries Council; Izaak Walton League; Southern Pulpwood Conservation Association; Tenessee Valley Authority; Trees for Tomorrow; many railroads and banking institutions; and last but by no means least—women's groups.

Wood using industries feel the responsibility of furnishing markets for the small farm woodlands. One company in an effort to put across the effects of forestry among small woodland owners developed a cooperative forest management program. As a trial balloon these first included doctors, lawyers, newspaper men, and farm leaders, and later included dirt farmers, with splendid success.

There is a great deal of work yet to be done in educating the millions of farm woodland owners as to the management of their woods and utilization of forest products, and in encouraging every windswept farm owner to establish a protective tree planting. But with everyone doing his part the job is not impossible.

ONE WAY TO INCREASE YIELDS.—Dave Cameron, of the Catawba (S. C.) Soil Conservation District, likes grass-based rotations. He has found that he can double his yields of corn, cotton, or tomatoes by planting such crops after several years of fescue and ladino clover.